

In the Matter of)
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American Electric Power Service Corporation)
Request For Waiver of 47 C.F.R § 17.47)
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Released: January 19, 2023

3 In the matter of American Electric Power Service Corporation Request for Waiver of 47 C.F.R. § 17.47(b), Request for Waiver, filed January 10, 2022 (*AEP Request*). On May 12, 2022, the Bureau's Competition and Infrastructure Policy Division (CIPD) requested additional information. *See* Letter from Jill A. Springer, Associate Chief, Competition and Infrastructure Policy Division, Wireless Telecommunications Bureau, to Bradford N. Holt, Director, Telecom Engineering Projects, American Electric Power Service Corporation (May 12, 2022). On May 31, 2022, AEP supplemented its waiver request with information regarding the technical characteristics and operational capabilities of the AEPMS. *See* Email from Bradford N. Holt, Director, Telecom Engineering Projects, American Electric Power Service Corporation, to Michael C. Smith, Program Analyst, Competition and Infrastructure Policy Division, Wireless Telecommunications Bureau (May 31, 2022) (*AEP Supplement*). On December 1, 2022, CIPD sent a second request for additional information. *See* Email from Michael C. Smith, Program Analyst, Competition and Infrastructure Policy Division, Wireless Telecommunications Bureau, to Bradford N. Holt, Director, Telecom Engineering Projects, American Electric Power Service Corporation and Donald R. Schiller, Network Consultant Lead, American Electric Power Service Corporation (December 1, 2022). On December 29, 2022, AEP supplemented its waiver request with information regarding the technical characteristics and operational capabilities of the AEPMS. *See* Email from Donald R. Schiller, Network Consultant Lead, American Electric Power Service Corporation, to Michael C. Smith, Program Analyst, Competition and Infrastructure Policy Division, Wireless Telecommunications Bureau (December 29, 2022) (*AEP Supplement II*).

intervals not to exceed 3 months all automatic or mechanical control devices, indicators, and alarm systems associated with the antenna structure lighting to insure that such apparatus is functioning properly.”⁴ Section 17.47(c) exempts from this requirement “any antenna structure monitored by a system that the Wireless Telecommunications Bureau has determined includes self-diagnostic features sufficient to render quarterly inspections unnecessary, upon certification of use of such system to the Bureau.”⁵

3. AEP provides monitoring for its affiliates and subsidiaries, currently in 375 sites across the United States, which are subject to the Commission’s lighting requirements in part 17.⁶ AEP filed a petition with the Bureau asking us to determine that the self-diagnostic functions of the AEPMS are sufficiently robust to ensure that the control devices, indicators, and alarm systems on antenna structures using the AEPMS are operating properly, such that quarterly inspections are unnecessary.⁷ AEP argues that the quarterly inspections of antenna monitoring systems mandated by section 17.47(b) have been rendered unnecessary because of technological advancements associated with the AEPMS. AEP asks us to “modify the Quarterly Inspection requirement to provide that such inspections be made annually with regard to all AEP’s monitored towers”⁸ pursuant to section 17.47(c).⁹

4. Specifically, AEP asserts in its petition that the AEPMS is similar to systems that have previously supported waiver grants¹⁰ and is a sophisticated, proven technology that is highly accurate and reliable.¹¹ AEP asserts that its system employs self-diagnostic functions that are sufficiently robust so as to make unnecessary quarterly inspections to ensure that the control devices, indicators, and alarm systems on the towers are operating properly.¹² AEP maintains that the AEPMS provides the functional equivalent of a continuous inspection of control devices on all towers it monitors. As a result, AEP states that “users of the AEP System, like users of the Eagle and Hark Systems,” systems for which the Commission previously approved waivers of section 17.47(b), “are alerted to actual and potential problems immediately in many cases and at most within twenty-four hours.”¹³ In support of these contentions, AEP describes the alarm notification, 24-hour polling, manual contact, and staffing and fail-safe procedures of the systems as set forth below.

⁴ 47 CFR § 17.47(b).

⁵ 47 CFR § 17.47(c).

⁶ *AEP Request* at 3.

⁷ *Id.* at 1.

⁸ *Id.*

⁹ Before creating the procedure for exemptions in section 17.47(c), the Commission granted limited waivers of section 17.47(b) and permitted antenna structure owners to conduct annual, rather than quarterly, inspections. After 2014, section 17.47(c) rendered such waivers unnecessary. *See 2004 and 2006 Biennial Regulatory Reviews – Streamlining and Other Revisions of Parts 1 and 17 of the Commission’s Rules Governing Construction, Marking and Lighting of Antenna Structures; Amendments to Modernize and Clarify Part 17 of the Commission’s Rules Concerning Construction, Marking and Lighting of Antenna Structures*, Report and Order, 29 FCC Rcd 9787, 9799-9802 (2014) (*Part 17 Order*). Accordingly, we treat AEP’s waiver request as a petition for relief of quarterly or annual inspection obligations pursuant to section 17.47(c) on our own motion.

¹⁰ *AEP Request* at 4, 10, 12.

¹¹ *Id.* at 5, 12.

¹² *Id.* at 10.

¹³ *Id.* at 4; *see also In the Matter of Requests of American Tower Corporation and Global Signal, Inc., to Waive Section 17.47(b) of the Commission’s Rules*, WT Docket No. 05-326, Memorandum Opinion and Order, 22 FCC Rcd 9743 (2007) (*ATC and Global Tower Waiver Order*) (waiving section 17.47(b) requirements for users of the Eagle and Hark Systems).

5. *Alarm notification.* At each AEPMS monitored tower, the tower site receives “alarms from the light controller, which contacts the AEP Network Operations Center (NOC) for every type of alarm condition.”¹⁴ The AEPMS classifies alarms as either critical or minor, with beacon/strobe/flashing sidelight failure, beacon/strobe communication failure, photo cell failure, site communication failure, power failure, GPS Sync failure, filter failure, low flash energy, and consecutive missed flashes treated as critical¹⁵, and side and single marker failure classified as minor.¹⁶ These alarms are captured and archived within the AEPMS database, which has an automated escalation protocol. If, after 30 minutes, the problem is not corrected and the alarm requires a Notice to Airmen (NOTAM)¹⁷ to be filed, AEP NOC personnel issue and record a manual NOTAM.¹⁸ In the event of a NOTAM-worthy event, NOC personnel create a field service ticket for a site equipment inspection, with such inspections to be completed within 7 days.¹⁹ Personnel can also log into the system database and check the site anytime to perform additional diagnostics and troubleshooting and can attempt to correct the problem remotely.²⁰

6. *24-hour polling.* The AEP System is programmed to proactively initiate a connection from each monitored site at least once every hour or 24 times per every 24 hours.²¹ In the event communications are lost, the system generates an alarm requiring a NOC Technician to attempt to contact the site manually. If the NOC Technician is unable to connect to the tower, a NOTAM is issued and alerts are sent to the designated responsible site contacts for follow up. If alarms are cleared automatically then updates are recorded in the system database.²² Once the issue is corrected and site correct operation verified, the NOTAM is canceled and recorded in an electronic database and stored for 5 years.²³

7. *Manual contact.* The AEPMS allows NOC technicians to perform a “manual diagnostic review of any tower monitored by the system from any computer connected to the internet and a secure connection to AEP’s network.”²⁴ That function enables personnel to contact the AEPMS “at the tower and review the operational status of the tower’s lighting system at any time.”²⁵ As a result, NOC personnel can remotely perform diagnostics and troubleshoot a problem, potentially correcting it remotely.²⁶

¹⁴ *Id.* at 8.

¹⁵ *Id.* at 4-5, 7.

¹⁶ *Id.* at 5.

¹⁷ Antenna structure owners “[s]hall report immediately to the FAA, by means acceptable to the FAA, any observed or otherwise known extinguishment or improper functioning of any top steady burning light or any flashing obstruction light, regardless of its position on the antenna structure, not corrected within 30 minutes.” 47 CFR § 17.48(a); *see also* FAA Circular AC-70/7460-1M, Chapter 2, Section 2.4 Light Failure Notification.

¹⁸ *AEP Request* at 7, 8-9.

¹⁹ *Id.* at 7.

²⁰ *Id.* at 9; *AEP Supplement* at Q1 response.

²¹ *AEP Request* at 9.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.* at 9-10.

²⁶ *Id.* at 6, 9; *AEP Supplement* at Q1 response.

8. *Staffing and Fail-Safe Procedures.* According to AEP, the AEPMS receives and reports alarms that are activated when the self-diagnostic functions of the obstruction lighting systems determine that there is a lighting malfunction. These monitoring devices are microcomputer-based and include programmable delays to prevent false alarms, alphanumeric labeling for input and output circuits to remove confusion as to the origin of alarms, and the capability of handling a variety of two-way communications to the NOC. The AEPMS allows NOC personnel to remotely perform inspections on the fly to ensure normal operation.²⁷ In addition, AEP monitors server health at both the physical and operating system levels, including monitoring software (that is external to the server) to ensure that the server components of the system are running properly.²⁸

9. To monitor the alarms, AEP's NOC and backup NOC are staffed with trained personnel capable of responding to alarms 24 hours per day, 365 days per year, which allows personnel to "easily shift to either location quickly in the event that one site is compromised."²⁹ The NOC is located at AEP's primary facility in Gahanna, OH, which includes a backup diesel generator that helps prevent power failure at the facility.³⁰ AEP's NOC personnel can also access the system from any computer in the world.³¹ In the event of a catastrophe, AEP has a backup NOC in Groveport, OH³² and has prepared a detailed disaster recovery procedures plan that would be placed into effect.³³ Since the primary and secondary locations are manned, personnel can easily shift to either location quickly in the event that one site is compromised.³⁴ The existence of two NOC centers is an important fail-safe mechanism, as it allows the backup center to assume monitoring responsibilities in the event of a catastrophic failure at the primary center.³⁵

10. In the event that both NOCs were to become incapacitated and suffer complete failures, AEP NOC technicians can connect from any physical location using a secure internet connection to the Telenium alarm servers.³⁶ In addition, ten off-site NOC contractors have remote Telenium alarm server access for uninterrupted alarm monitoring.³⁷ The transfer of monitoring would be immediate since off-site users are able to access the Telenium servers from any remote location through AEP's VPN network, which includes redundancies via New Albany, OH and Tulsa, OK.³⁸ These fail-safe procedures ensure that robust monitoring of the towers will continue even if one or both of the NOC centers is rendered inoperable.

11. Further, there is battery backup at both the sites and the NOC, as well as redundant communications systems within the AEP System.³⁹ Battery backup for the vast majority of the sites have both local generators and battery systems that ensure power for several days, while some of the sites have

²⁷ *AEP Request* at 5-6; *AEP Supplement* at Q1 response.

²⁸ *AEP Request* at 8.

²⁹ *Id.* at 5; *AEP Supplement* at Q1 response, Q3/4 response.

³⁰ *AEP Request* at 10, 11; *AEP Supplement* at Q3/4 response.

³¹ *AEP Request* at 9-10.

³² *Id.* at 11; *AEP Supplement* at Q3/4 response.

³³ *AEP Request* at 9-10.

³⁴ *Id.* at 11; *AEP Supplement* at Q3/4 response.

³⁵ *AEP Request* at 11; *AEP Supplement* at Q3/4 response.

³⁶ *AEP Request* at 9; *AEP Supplement* at Q3/4 response.

³⁷ *AEP Supplement* at Q3/4 response.

³⁸ *AEP Request* at 6; *AEP Supplement* at Q3/4 response.

³⁹ *AEP Request* at 6.

solar power systems with seven days of autonomy.⁴⁰ AEP states that 8% of the current AEPMS sites are designed with battery backup able to maintain communications links to the alarm system for only 2-3 hours;⁴¹ however, AEP states that these sites are located within urban areas where field techs are quickly available, 24/7/365, to resolve the issue well within the 2–3 hour battery backup window,⁴² and that “power to these locations is often restored automatically by distribution switching or as part of the utility’s power restoration plan.”⁴³ Communications of events to the AEP NOC are provided using digital cellular communications with 99.5% availability, and/or AEP’s internal network, designed with 99.999% availability.⁴⁴ The AEP System includes redundant systems using ring architecture, which, upon failure of a single transport node and/or cellular gateway, immediately switches to a backup to restore connectivity to the light controller. In the event that the light controller loses communications to the alarm server, the AEP System has redundant cellular gateways through the two Telenium alarm servers. The built-in redundancies ensure that the AEP System’s notifications are sent immediately in the event of an alarm.⁴⁵

III. DISCUSSION

12. We find that the AEPMS “includes self-diagnostic features sufficient to render quarterly inspections unnecessary”⁴⁶ and is similar to the monitoring systems we have evaluated in other orders. On May 15, 2007, the Commission granted American Tower Corporation (ATC) and Global Signal, Inc. (GSI) waivers of section 17.47(b) to allow annual, rather than quarterly, inspection of towers monitored by specified, technologically advanced monitoring systems.⁴⁷ In the 2014 *Part 17 Order*, the Commission granted exemptions from all inspection obligations to those entities previously granted a waiver for their antenna structures monitored by qualifying systems, as long as they continued to meet the advanced monitoring obligations to which they had already certified.⁴⁸ Since then, the Bureau has, on delegated authority, granted similar waivers to entities demonstrating that their systems were similarly robust, and were operated in a similar manner, to the systems described in the *ATC and Global Tower Waiver Order*.⁴⁹ Accordingly, we find that the AEPMS, when used in the manner described by AEP, justifies an exemption from the quarterly inspection requirement of section 17.47(b) pursuant to section 17.47(c).

13. The technology that the AEPMS employs is similar to that exhibited by other monitoring systems that we have previously found to be sufficiently robust to support waivers based on the efficacy of their system and backup procedures. The AEPMS is similar in that it has a continuous and permanent

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *AEP Supplement* at Q2 response; *see also AEP Supplement II* (stating that technicians are available 24/7/365).

⁴³ *AEP Supplement II*.

⁴⁴ *AEP Request* at 6.

⁴⁵ *AEP Request* at 6-7; *AEP Supplement* at Q3/4 response, Q5 response.

⁴⁶ 47 CFR § 17.47(c).

⁴⁷ *See ATC and Global Tower Waiver Order*, 22 FCC Rcd 9748, para. 18.

⁴⁸ *Part 17 Order*, 29 FCC Rcd at 9801, para 34.

⁴⁹ *See United States Cellular Corporation Request for Waiver of 47 C.F.R. § 17.47(b)*, Memorandum Opinion and Order, 30 FCC Rcd 5026 (WTB 2015); *Petition of Cellco Partnership For Exemption from 47 CFR § 17.47(b): Vanguard Monitoring System*; *Petition of Cellco Partnership For Exemption from 47 CFR § 17.47(b): QLI Monitoring System*, Memorandum Opinion and Order, 34 FCC Rcd 3759 (WTB 2019). *See also Part 17 Order*, 29 FCC Rcd at 9801, para 34.

two-way link between the tower site and the response center;⁵⁰ timely reporting of potential problems;⁵¹ continuously staffed response centers;⁵² 24-hour polling of both lighting and communications systems;⁵³ on demand interrogation capabilities;⁵⁴ backup response centers;⁵⁵ and essentially uninterrupted communications between the response center and the towers during power outages.⁵⁶

14. Based on the record before us, and consistent with previous Commission and Bureau orders, the Bureau finds that the AEPMS includes self-diagnostic features sufficient to render quarterly inspections unnecessary.⁵⁷ We conclude that the AEPMS is a safe and reliable monitoring system with tracking mechanisms that ensure proper functioning of their remote monitoring technology. Such advanced technology provides the benefits of more rapid response in case of a lighting failure. As a result, the AEPMS, when used in the manner described by AEP, justifies an exemption from the quarterly inspection requirement of section 17.47(b). Therefore, pursuant to section 17.47(c), AEP is exempt from section 17.47(b) with regard to any of its towers monitored by the AEPMS in the manner described in this Order. This will enable AEP to more efficiently carry out its responsibilities under part 17 of the Commission's rules.⁵⁸ Our actions today should encourage other tower owners to invest in state-of-the-art technologies so that they, too, will become capable of continuous monitoring of both their lighting systems and control devices.

IV. ORDERING CLAUSE

15. Pursuant to sections 4(i), 303(q), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(q), 303(r), and pursuant to sections 0.131, 0.331 and 17.47(c) of the Commission's Rules, 47 CFR §§ 0.131, 0.331, 17.47(c), the Petition filed by American Electric Power Service Corporation IS GRANTED.

FEDERAL COMMUNICATIONS COMMISSION

Kari L. Hicks
Associate Chief, Wireless Telecommunications Bureau

⁵⁰ *AEP Request* at 5-7, 10.

⁵¹ *Id.* at 4, 10.

⁵² *Id.* at 5.

⁵³ *Id.* at 7, 9.

⁵⁴ *Id.* at 9-10; *AEP Supplement* at Q3/4 response.

⁵⁵ *AEP Request* at 11; *AEP Supplement* at Q3/4 response, Q5 response.

⁵⁶ *AEP Request* at 6; *AEP Supplement* at Q3/4 response.

⁵⁷ 47 CFR § 17.47(c).

⁵⁸ *See Part 17 Order*, 29 FCC Rcd at 9801, para. 34.